

DATE: December 12, 2012

TO: Jeff Catanzarita, U.S. EPA/ERT Acting Work Assignment Manager

THROUGH: Dennis Miller, SERAS Program Manager *Dennis*

FROM: Christopher Gussman, SERAS Task Leader *Chris Gussman*

SUBJECT: JEWETT WHITE LEAD SITE 2012 FIELD ACTIVITIES  
JEWETT WHITE LEAD SITE  
WORK ASSIGNMENT: SERAS-138  
TRIP REPORT

## INTRODUCTION

The Jewett White Lead Site consists of the footprint of the former Jewett White Lead Company facility and the extent of contamination which includes the 1.07-acre parcel of land located at 2000-2012 Richmond Terrace and the approximately 4.41-acre parcel of land located at 2015 Richmond Terrace (of which, approximately 2.25-acres is not covered by the surface waters of the Kill Van Kull). Historically, John Jewett & Sons White Lead Company operated a white lead manufacturing facility which originated at 2015 Richmond Terrace where they owned and operated the Site. In April 1890, National Lead and Oil Company of New York acquired the Site property and extended the white lead manufacturing operations across the street to include the 2000 Richmond Terrace property. The portion of the Site located at 2015 Richmond Terrace has been owned and operated by the Moran Towing Corporation ("Moran") since December 31, 1943, when Moran acquired the 2015 Richmond Terrace property from National Lead. This property is currently an active facility that provides tugboat services to the Port of New York. EPA has conducted several sampling events at the Jewett White Lead Site in response to a request to evaluate the properties for a cleanup action submitted by the Council of the City of New York in June 2008.

In 2011, additional site work was conducted that focused on four properties bordering the Kill Van Kull in the proximity of the former Site, and at the 2015 Richmond Terrace property. Scientific, Engineering, Response and Analytical Services (SERAS) personnel were tasked with providing technical support to the Environmental Protection Agency/Environmental Response Team (EPA/ERT) and EPA Region 2 to better define the distribution and concentration of lead in soil and water on these four properties and in offshore sediment and water downgradient of the Site. To achieve this goal, in 2011 SERAS subcontractors installed three flush-mount monitoring wells, advanced Geoprobe cores at 18 locations up to 8-feet deep, and vibracored offshore at six locations to collect sediment cores. Water samples were collected by SERAS personnel offshore at three depths at each of four locations. Filtered and unfiltered water samples were also collected from four Site wells at both high and low tide. SERAS personnel provided sampling support and conducted X-ray fluorescence (XRF) screening of the soil cores. EPA Region 2 provided analytical services for the collected soil, sediment, and water samples other than XRF.

The current scope of work, performed in September 2012, focused on further defining the presence, distribution and depth of contaminants; particularly lead, in sediments within the Kill Van Kull. The, goals, detection limits, and other relevant information regarding this effort is included in the July 23, 2012 Quality Assurance Project Plan for Jewett White Lead Site (UFP-QAPP), Amendment 1. Results of the 2011 sampling of sediment, soil, and water sampling event may be found in the Jewett White Lead Site 2011 Field Activities report. This report is electronically archived at SERAS ( I:\Archive\SERAS\138\DR\121511).

## FIELD ACTIVITIES

This 2012 field effort occurred during two separate field events in September of 2012. Aqua Survey (Flemington, NJ) was subcontracted by SERAS for both field activities.

- A bathymetric survey was performed within the Kill Van Kull at 2015 Richmond Terrace. This survey included much of the basin, an area located between the two docks owned by Moran Shipping and continued north just outside the basin within the channel of the Kill Van Kull (Appendix A).
- Sediment samples were collected using a vibracore within the basin and the channel of the Kill Van Kull at 2015 Richmond Terrace. These sediment samples were collected further from the property and closer to the channel than the 2011 samples. Sediment sampling locations for both sampling events is presented in Figure 1.

### Bathymetrics

Prior to collecting additional sediment samples it was decided that the physical depth of the sediment and depth of water within the Kill Van Kull offshore of the 2015 Richmond Terrace property needed to be determined to assist in the selection of the sediment sampling locations based on the sediment type and thickness. Defining the sub-bottom would assist in determining the vertical distribution of contaminants based on layers of sediment type. Sub-bottom profilers use acoustic methods to generate high-resolution cross sectional images of the marine sub-bottom. The transmitted sound pulses travel through the water column and sub-bottom and are reflected when changes in acoustic impedance are encountered. Acoustic impedance commonly occurs at boundaries between materials. The reflected sound pulses travel back to the profiler where their amplitudes, as a function of travel-time, are digitally recorded.

Bathymetry data were collected using an Odom Echotrac CVM multi-frequency single beam echo sounder. This survey grade fathometer provides a vertical resolution better than 0.1feet (ft) over the expected depth range of the survey area.

The sub-bottom data were collected with an ODEC StrataBox system. Sub-bottom data were collected at 50-foot line spacing with transects oriented perpendicular to the river channel. The positioning system during the sub-bottom survey was the same used during the bathymetry survey.

Following the survey, the data were processed, point plotted, and contoured with elevations presented. Horizontal coordinates were relative to New York State Plane NAD83, Long Island, in U.S. Survey Feet. Tidal variations were compared to predicted tides for the area against observed tides at the nearest tide stations.

The depth of penetration during this particular study in the Kill Van Kull was greatly limited by the presence of organic-rich silt layers near the surface, severely dampening the penetration of the sound energy. The high volume of organic material within the sediment of the Kill Van Kull resulted in a lot of gas trapped within the sediment. These gases limited the deeper passage of sound waves, since the presence of gas creates a very high acoustic impedance contrast, causing most of the sound energy to be deflected. For this reason, efforts to characterize the subbottom and to determine and visualize the depth of sediment failed.

Due to the depth of the boat basin, the subcontractors were also unable to safely collect probing data to support the bathymetrics. Depth of water data was collected. A map of the water depth in the area of interest may be viewed in Appendix A.

### Sediment Sampling

Vibracore sampling was conducted in September 2012 at six additional locations within the basin, offshore of 2015 Richmond Terrace and just outside of the two large docks that run from the property into the Kill Van Kull. These sediment cores were collected to provide additional information on the distribution and depth of contaminants, particularly lead, within the Kill Van Kull. Aqua Survey (Flemington, NJ) performed the vibracoring. Four of the locations continued outward from the property towards and up to the edge of the central channel. Two other sampling points were conducted slightly upstream and downstream of the edge of the docks.

Aqua Survey performed the sampling from a vessel containing a powered vibracoring unit with a 4-inch steel barrel and hardcore liners to collect the cores. Nose cones with core catchers were utilized to minimize sediment loss from the bottom of the core. Retrieved cores were capped on both ends, stored vertically and relinquished to SERAS personnel for processing immediately after being collected. GPS was used to record each sampling location with coordinates being recorded in New York Long Island State Plane NAD83.

Figure 1 indicates the current sampling locations in yellow as well as the previous sampling locations in red. Successful cores were collected at locations 6, 7, 8, 9, 10, 11 and 12 though locations 8 and 11 only went to about 2-feet below sediment surface before refusal). Location 8 was on the slope that led to a central channel within the Kill Van Kull. Cores were processed on Site and samples delivered to the Region 2 DESA Laboratory for analyses. Logs of the collected cores are included in Appendix B.

## RESULTS

Analytical results were evaluated to determine if concentrations of lead exceeded the project action limits for lead specified in the site-specific UFP-QAPP of 31 mg/kg in sediments. Table 1 summarizes the 2012 analytical results. Sampling conducted in 2011 resulted in three of the four sediment cores within the Kill Van Kull having lead contamination above the project action limit throughout the entire core. Elevated lead levels which were found outside of the dock area during the current sampling event seemed to be confined to the surface sediments (see Figure 1). Soil logs showed the elevated lead to be mostly in areas of sediment or sediment and sand.

Although the focus of the investigation was on lead, the remaining ICP metal concentration on the samples is included in the analytical report in Appendix C (electronic copy).

### Summary

The current investigation found elevated lead levels in offshore sediment. Sediment contamination seems to be primarily closer to the property, though lead contaminated surface sediment may be found further out in the channel at some locations (Figure 1).

During the previous sampling effort, elevated sediment lead concentrations above the project action limit of 31 mg/kg were found in three of the four sediment cores collected to a depth of 8-feet below sediment surface and at one interval in the remaining core. The current effort found elevated levels of lead down to a depth of 2-feet in two of the four cores, surface (6 inches) elevated lead only in two of the cores, and two of the cores did not show any lead above the action limit (although slightly above [38 mg/kg] the action limit at 1-2 feet below sediment surface at location 11, a dup at the same location demonstrated only 3 mg/kg lead). The highest concentration of lead found in sediment during the 2012 sampling was 1100 mg/kg at location 9, at a depth of 0.5-1 feet below the sediment surface. The highest lead concentration overall in sediment was found at JWLS-SED5-D (2-3 feet below the sediment surface), 29,000 mg/kg lead, but this location is an anomaly.

CC: Central Files- WA # SERAS-138 (w/attachments)

Tables  
Jewett White Lead Site 2012 Field Activities  
Jewett White Lead Site  
Staten Island, New York  
December 12, 2012

Table 1  
 Jewett White Lead 2012 Sediment Core Data Summary  
 Jewett White Lead Site  
 12-Dec-12

Sample #	Location	Sub_Location	Analysis	Analyte	Result	Units	Longitude	Latitude
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Aluminum	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Antimony	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Arsenic	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Barium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Beryllium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Cadmium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Calcium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Chromium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Cobalt	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Copper	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Iron 2599A	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Lead	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Magnesium 2852	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Manganese	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Molybdenum	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Nickel	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Potassium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Selenium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Silver	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Sodium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Thallium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Vanadium	0	ug/L	N/A	N/A
138-081011-0119	Rinsate Blank 6		EPA 200.7 / SOP C-109	Zinc	0	ug/L	N/A	N/A
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Aluminum	3300	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Antimony	0	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Arsenic	2.9	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Barium	14	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Beryllium	0	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Cadmium	0	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Calcium	1400	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Chromium	12	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Cobalt	3.5	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Copper	9.3	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Iron	13000	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Lead	41	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Magnesium	2500	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Manganese	160	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Molybdenum	3.1	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Nickel	9.4	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Potassium	620	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Silver	0	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Sodium	3800	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Vanadium	16	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 200.7 / SOP C-109	Zinc	35	mg/kg	-74.129263	40.641309
138-081111-0061	JWL-SED7	A	EPA 245.1 / SOP C-110	Mercury	0.098	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Aluminum	1900	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Antimony	0	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Arsenic	1.2	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Barium	12	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Beryllium	0	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Cadmium	0	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Calcium	480	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Chromium	7.2	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Cobalt	3.2	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Copper	17	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Iron	6800	mg/kg	-74.129263	40.641309
138-081111-0062	JWL-SED7	B	EPA 200.7 / SOP C-109	Lead	23	mg/kg	-74.129263	40.641309













138-081111-0085	JWL-SED9	G	EPA 200.7 / SOP C-109	Nickel	24	mg/kg	-74.129621	40.641602
138-081111-0085	JWL-SED9	G	EPA 200.7 / SOP C-109	Potassium	610	mg/kg	-74.129621	40.641602
138-081111-0085	JWL-SED9	G	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129621	40.641602
138-081111-0085	JWL-SED9	G	EPA 200.7 / SOP C-109	Silver	0	mg/kg	-74.129621	40.641602
138-081111-0085	JWL-SED9	G	EPA 200.7 / SOP C-109	Sodium	1100	mg/kg	-74.129621	40.641602
138-081111-0085	JWL-SED9	G	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129621	40.641602
138-081111-0085	JWL-SED9	G	EPA 200.7 / SOP C-109	Vanadium	18	mg/kg	-74.129621	40.641602
138-081111-0085	JWL-SED9	G	EPA 200.7 / SOP C-109	Zinc	37	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Aluminum	4500	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Antimony	0	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Arsenic	2.8	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Barium	22	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Beryllium	0	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Cadmium	0	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Calcium	1300	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Chromium	22	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Cobalt	4.5	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Copper	5.7	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Iron	7400	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Lead	7.2	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Magnesium	2852	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Manganese	65	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Molybdenum	1.7	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Nickel	21	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Potassium	560	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Silver	0	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Sodium	920	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Vanadium	16	mg/kg	-74.129621	40.641602
138-081111-0086	JWL-SED9	H	EPA 200.7 / SOP C-109	Zinc	40	mg/kg	-74.129621	40.641602
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Aluminum	8200	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Antimony	3.2	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Arsenic	30	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Barium	150	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Beryllium	0	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Cadmium	1.5	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Calcium	5000	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Chromium	100	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Cobalt	7.7	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Copper	220	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Iron	23000	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Lead	610	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Magnesium	5300	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Manganese	290	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Molybdenum	1.6	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Nickel	39	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Potassium	1800	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Selenium	2.5	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Silver	2.4	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Sodium	7500	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Vanadium	30	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 200.7 / SOP C-109	Zinc	490	mg/kg	-74.128950	40.641272
138-081111-0088	JWL-SED10	A	EPA 245.1 / SOP C-110	Mercury	3.3	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Aluminum	2100	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Antimony	0	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Arsenic	2.5	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Barium	0	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Beryllium	0	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Cadmium	0	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Calcium	840	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Chromium	4.3	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Cobalt	2	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Copper	2.9	mg/kg	-74.128950	40.641272
138-081111-0089	JWL-SED10	B	EPA 200.7 / SOP C-109	Iron	7100	mg/kg	-74.128950	40.641272







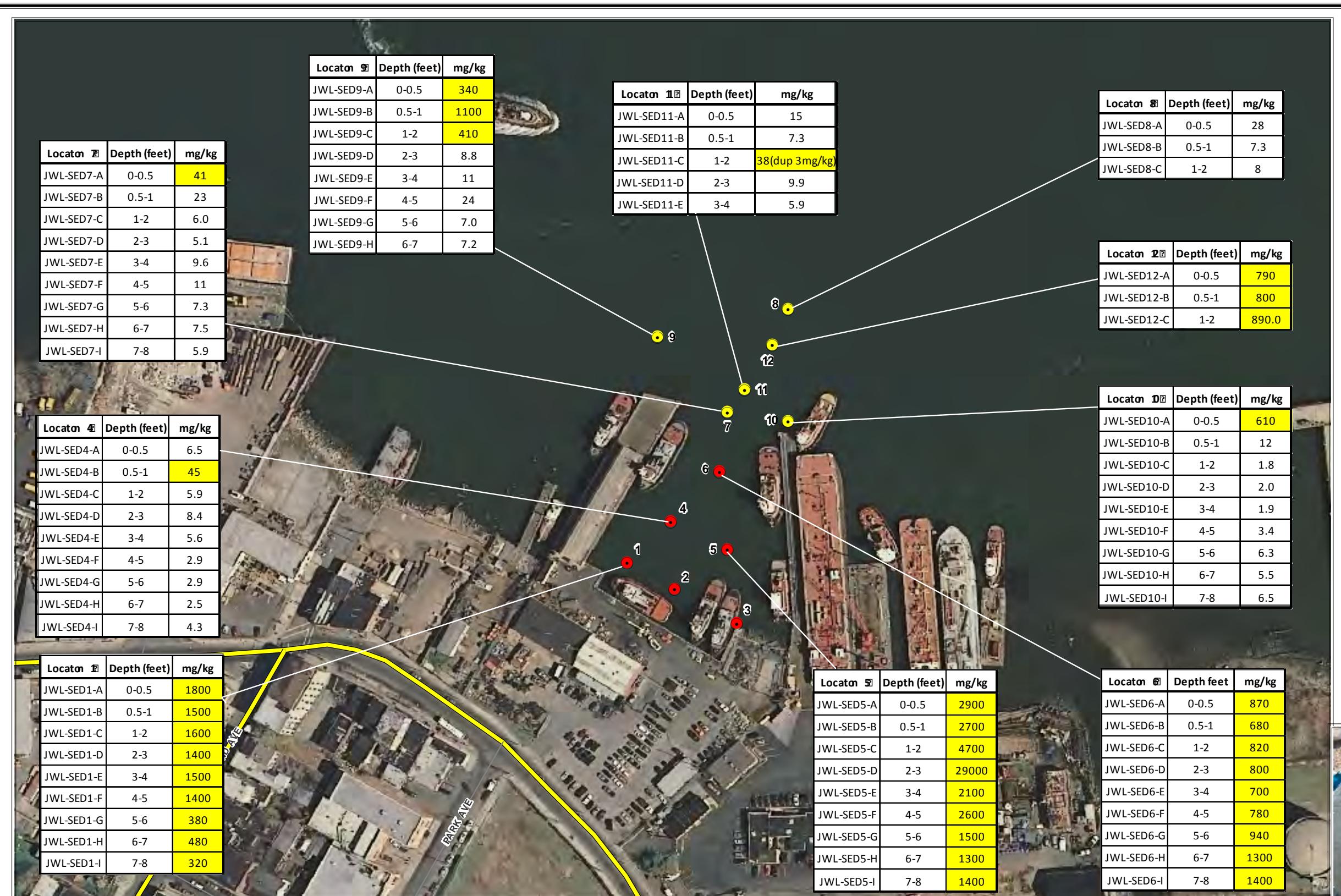


138-081111-0100	JWL-SED11	D	EPA 200.7 / SOP C-109	Vanadium	21	mg/kg	-74.129174	40.641401
138-081111-0100	JWL-SED11	D	EPA 200.7 / SOP C-109	Zinc	56	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Aluminum	3100	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Antimony	0	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Arsenic	1.6	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Barium	36	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Beryllium	0	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Cadmium	0	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Calcium	790	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Chromium	18	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Cobalt	4	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Copper	4.4	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Iron	9000	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Lead	5.9	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Magnesium 2852	1800	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Manganese	100	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Molybdenum	1	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Nickel	12	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Potassium	550	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Silver	0.61	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Sodium	150	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Vanadium	17	mg/kg	-74.129174	40.641401
138-081111-0101	JWL-SED11	E	EPA 200.7 / SOP C-109	Zinc	20	mg/kg	-74.129174	40.641401
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Aluminum	9800	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Antimony	13	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Arsenic	31	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Barium	300	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Beryllium	1.1	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Cadmium	9.9	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Calcium	6000	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Chromium	440	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Cobalt	14	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Copper	440	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Iron	31000	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Lead	790	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Magnesium	6900	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Manganese	290	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Molybdenum	5.7	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Nickel	86	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Potassium	2700	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Silver	11	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Sodium	13000	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Vanadium	66	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 200.7 / SOP C-109	Zinc	920	mg/kg	-74.129029	40.641573
138-081111-0106	JWL-SED12	A	EPA 245.1 / SOP C-110	Mercury	7.5	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Aluminum	4400	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Antimony	8	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Arsenic	19	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Barium	93	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Beryllium	1.7	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Cadmium	6	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Calcium	8000	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Chromium	150	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Cobalt	16	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Copper	270	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Iron	25000	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Lead	800	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Magnesium	3500	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Manganese	230	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Molybdenum	7.3	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Nickel	59	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Potassium	1000	mg/kg	-74.129029	40.641573

138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Silver	2.6	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Sodium	4900	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Vanadium	50	mg/kg	-74.129029	40.641573
138-081111-0107	JWL-SED12	B	EPA 200.7 / SOP C-109	Zinc	2600	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Aluminum	2100	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Antimony	3.9	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Arsenic	6.6	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Barium	70	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Beryllium	1.9	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Cadmium	0.57	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Calcium	900	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Chromium	32	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Cobalt	20	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Copper	250	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Iron	15000	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Lead	890	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Magnesium 2852	1400	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Manganese	150	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Molybdenum	6.9	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Nickel	50	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Potassium	330	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Silver	0.68	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Sodium	980	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Vanadium	16	mg/kg	-74.129029	40.641573
138-081111-0108	JWL-SED12	C	EPA 200.7 / SOP C-109	Zinc	1700	mg/kg	-74.129029	40.641573
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Aluminum	3000	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Antimony	1.8	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Arsenic	4.3	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Barium	37	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Beryllium	0.98	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Cadmium	0.77	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Calcium	2200	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Chromium	44	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Cobalt	6.7	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Copper	110	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Iron	10000	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Lead	380	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Magnesium	2300	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Manganese	130	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Molybdenum	3.2	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Nickel	38	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Potassium	670	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Silver	1.1	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Sodium	2400	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Vanadium	13	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 200.7 / SOP C-109	Zinc	470	mg/kg	-74.129621	40.641602
138-081111-0115	FD-07	SED09-A	EPA 245.1 / SOP C-110	Mercury	0.25	mg/kg	-74.129621	40.641602
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Aluminum	2300	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Antimony	0	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Arsenic	0.96	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Barium	0	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Beryllium	0	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Cadmium	0	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Calcium	380	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Chromium	4.9	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Cobalt	0	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Copper	1.1	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Iron	7300	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Lead	2.1	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Magnesium 2852	1400	mg/kg	-74.128950	40.641272

138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Manganese	55	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Molybdenum	3.8	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Nickel	4.1	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Potassium	340	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Silver	0	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Sodium	1700	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Vanadium	5	mg/kg	-74.128950	40.641272
138-081111-0116	FD-08	SED10-D	EPA 200.7 / SOP C-109	Zinc	17	mg/kg	-74.128950	40.641272
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Aluminum	2700	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Antimony	0	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Arsenic	2.5	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Barium	13	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Beryllium	0	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Cadmium	0	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Calcium	590	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Chromium	8.1	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Cobalt	3	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Copper	2.5	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Iron	9000	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Lead	3	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Magnesium 2852	1600	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Manganese	120	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Molybdenum	3.7	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Nickel	5.5	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Potassium	440	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Selenium	0	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Silver	0	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Sodium	1600	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Thallium	0	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Vanadium	14	mg/kg	-74.129029	40.641573
138-081111-0117	FD-09	SED11-C	EPA 200.7 / SOP C-109	Zinc	19	mg/kg	-74.129029	40.641573

Figure  
Jewett White Lead Site 2012 Field Activities  
Jewett White Lead Site  
Staten Island, New York  
November 28, 2012



Map created using 2007 color orthophotography from NJGIN.

Map Creation Date: November 2012

Coordinate system: New York State Plane

FIPS: 3104

Datum: NAME  
Hilfe: F

Units: Feet

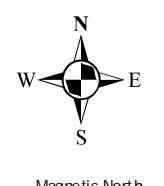
a: g:\arcview\projects\SERAS01\00-138  
D file: g:\arcinfo\projects\SERAS01\SER00138\_JewettWhiteLead\  
2012 LeadSediment.F1

Legends

- 2012 Sediment Sample
  - 2011 Sediment Sample

Concentration > Project Action Limit  
of 31 mg/kg Lead in Sediment

150 0 150  
Feet

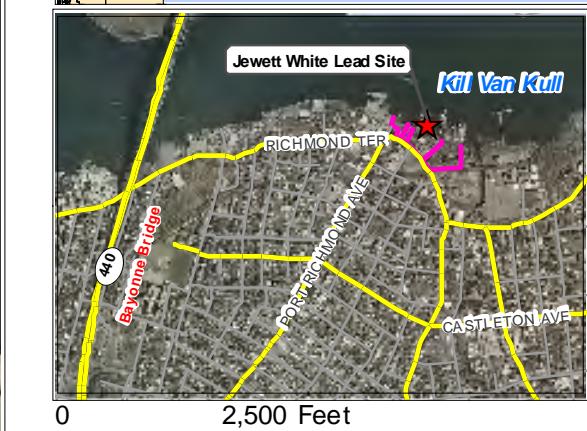
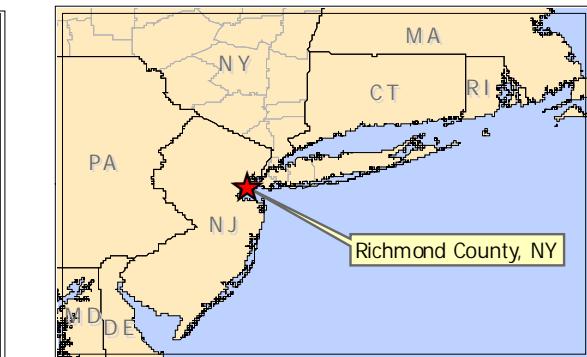


**NOTE:**

**NOTE:**  
Due to refusal, no samples were collected at locations 2 and 3.

U.S EPA Environmental Response Team  
Scientific Engineering Response and Analytical Services

EP-W-09-031  
W.A. # 0-138



## Vibracoring in the Kill Van Kull

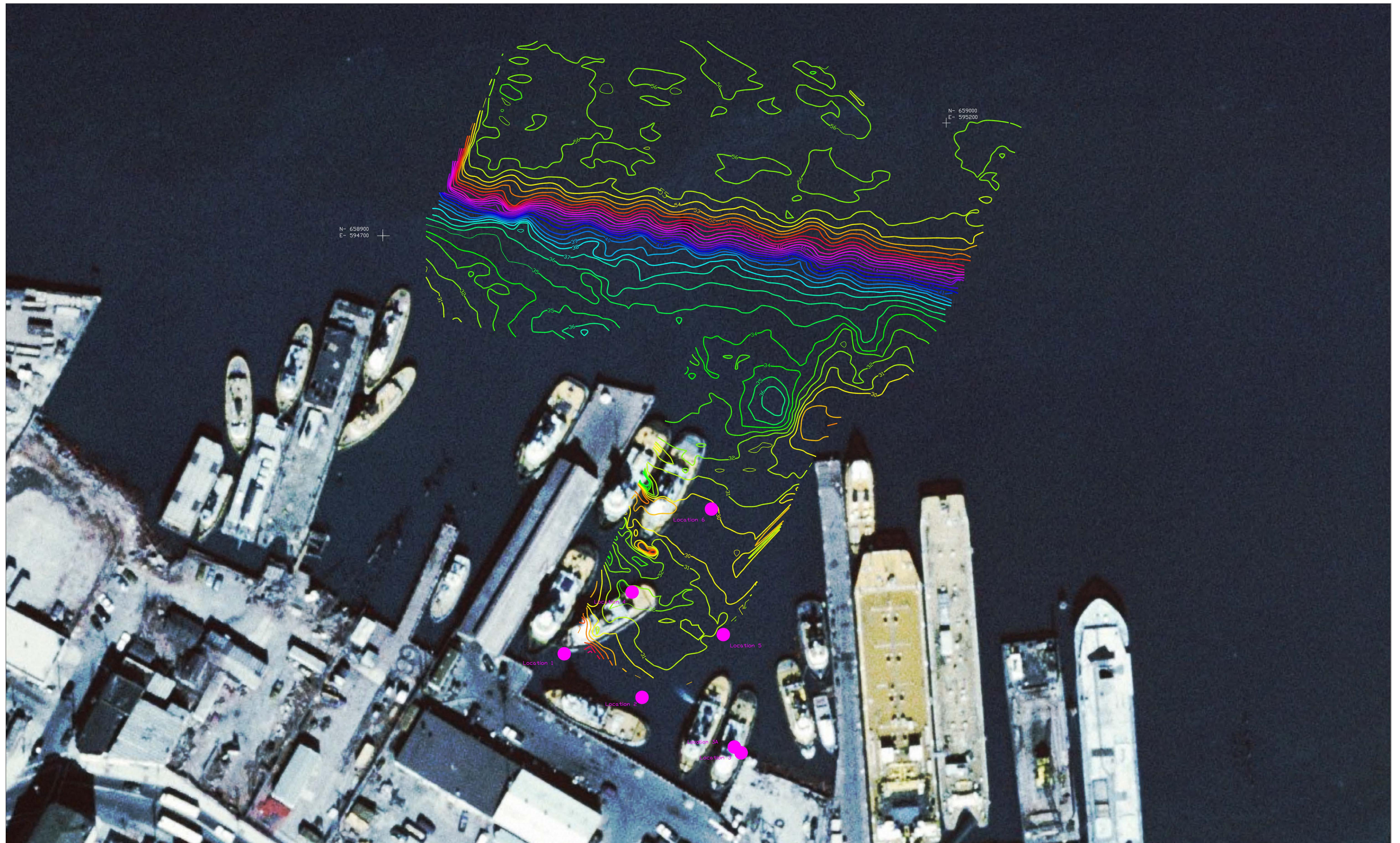


# Figure 1

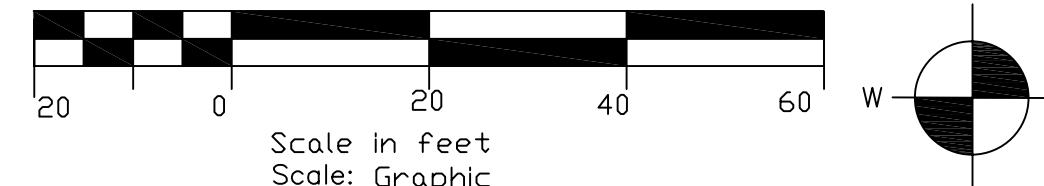
## Lead in Sediment Samples

### Jewett White Lead Site Staten Island, New York

Appendix A  
Hydrographic Survey  
Jewett White Lead Site 2012 Field Activities  
Jewett White Lead Site  
Staten Island, New York  
December 12, 2012



Aqua Survey, Inc.  
(908) 788-8700  
469 Point Breeze Road  
Flemington, NJ 08822



Source: Aqua Survey Inc. Hydrographic Survey  
Date: September 5, 2012.

Previous Sample Location

Drn. By: S. Brodman

Date: 19 SEPT 2012

Vessel: R/V DELAWARE  
Positioning System: Trimble DGPS  
Echo Sounder: IT 455 at  
200 kHz/24Khz  
Navigation/Data Acquisition: Hypack  
Max v. 10.0

NOTES:  
The information depicted on this map represents the results of surveys made by Aqua Survey Inc. of Flemington, NJ on the dates indicated. Coordinates shown hereon are expressed in U.S. Survey Feet and referenced to the North American Datum of 1983 (NAD83) New Jersey. Soundings are referenced to depth below Mean Low Water (MLW) and reflect the conditions at the time of the survey. Contour are expressed in feet (Interval 1 foot).

Hydrographic Survey  
Jewett White Lead Site  
Staten Island, NY

Appendix B  
Soil Core Logs and Photographs  
Jewett White Lead Site 2012 Field Activities  
Jewett White Lead Site  
Staten Island, New York  
December 12, 2012

Project No: SERA02-00138

## Log of Borehole: JWL-SED7

Project: Jewett White Lead Site

Client: EPA R2/ERT

Location: Kill Van Kull

Logged By: J. Bolduc

Northing (Feet): 172948.92

Easting (Feet): 948376.32

Date: 9/27/12

SUBSURFACE PROFILE		SAMPLE			Notes	
Depth ft m	Symbol	Description	Number	Type	Recovery	
0		Sediment Surface				
0.5		<b>SILT</b> Dark greenish gray, trace fine sand, abundant twigs, intact clam shell, very soft, nonplastic, highly humic, wet.	JWL-SED7-A			
1.0		<b>SAND</b> Dark greenish gray, fine to medium grained, subangular, little silt, some clam shell fragments, wet.	JWL-SED7-B			
1.5		<b>CLAY</b> Dark greenish gray, little fine sand, some silt, occasional wood fragments, medium plasticity, wet.	JWL-SED7-C			
2.0		<b>SAND</b> Dark greenish gray, fine to medium grained, some silt, wet.	JWL-SED7-D			
2.5		<b>CLAY</b> Very dark gray, some fine- to coarse-grained sand interbeds in upper foot, trace fine subrounded gravel, low to medium plasticity, occasional wood fragments, wet.	JWL-SED7-E			
3.0			JWL-SED7-F			
3.5			JWL-SED7-G			
4.0			JWL-SED7-H			
4.5			JWL-SED7-I			
5.0						
5.5						
6.0		<b>GRAVEL</b> Dark gray, fine to coarse subangular to subrounded gravel, some fine- to coarse-grained sand, little silt, few wood fragments, wet.				
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Drill Method: Vibracore

Lockheed Martin/SERAS  
2890 Woodbridge Avenue  
Building 209 Annex  
Edison, NJ 08837

Drill Company: Aqua Survey

Sheet: 1 of 1

Hole Size: 4 inches

Project No: SERA02-00138

## Log of Borehole: JWL-SED8

Project: Jewett White Lead Site

Client: EPA R2/ERT

Location: Kill Van Kull

Logged By: J. Bolduc

Northing (Feet): 173096.56

Easting (Feet): 948464.11

Date: 9/27/12

SUBSURFACE PROFILE		SAMPLE			Notes	
Depth	Symbol	Description	Number	Type	Recovery	
0 ft m 0		Sediment Surface				
0.5		<b>SAND</b> Dark grayish brown, fine to coarse, some fine and coarse surrounded to rounded gravel, trace to little silt, very loose, intact clam shell at 0.5 foot, glass shard at 1 foot, wet.	JWL-SED8-A			
1			JWL-SED8-B			
1.5			JWL-SED8-C			
2		<b>SILT</b> Dark grayish brown, and fine-grained sand, little clay, nonplastic, firm, wet. <b>NO RECOVERY</b>				
2.5						
3						
3.5						
4						
4.5						
5						
5.5						
6						
6.5						Refusal at 6.5 feet.
7						
7.5						
8						
8.5						
9						
9.5						
10						

Drill Method: Vibracore

Lockheed Martin/SERAS  
2890 Woodbridge Avenue  
Building 209 Annex  
Edison, NJ 08837

Sheet: 1 of 1

Drill Company: Aqua Survey

Hole Size: 4 inches

Project No: SERA02-00138

Project: Jewett White Lead Site

Client: EPA R2/ERT

Location: Kill Van Kull

Logged By: J. Bolduc

## Log of Borehole: JWL-SED9

Northing (Feet): 173055.76

Easting (Feet): 948277.10

Date: 9/27/12

SUBSURFACE PROFILE		SAMPLE			Notes	
Depth	Symbol	Description	Number	Type	Recovery	
0 ft m 0		Sediment Surface				
1		<b>SAND</b> Very dark gray, fine to coarse, some silt, little clay, abundant intact and broken clam shells, few wood fragments between depth of 1 to 2 feet, hydrogen sulfide odor throughout, very loose, wet.	JWL-SED9-A			
2		<b>SAND</b> Very dark gray, fine to medium, little silt, few clam shell fragments, loose, wet. <b>CLAY</b> Dark greenish gray, little fine- to medium-grained sand, medium plasticity, firm, wet.	JWL-SED9-B			
3			JWL-SED9-C			
4			JWL-SED9-D			
5		<b>SAND</b> Dark greenish gray, predominantly fine grained, trace medium grained, dense, some silt, wet.	JWL-SED9-E			
6			JWL-SED9-F			
7			JWL-SED9-G			
8			JWL-SED9-H			
9						Refusal at 6.5 feet.
10						

Drill Method: Vibracore

Drill Company: Aqua Survey

Hole Size: 4 inches

Lockheed Martin/SERAS  
2890 Woodbridge Avenue  
Building 209 Annex  
Edison, NJ 08837

Sheet: 1 of 1

Project No: SERA02-00138

**Log of Borehole: JWL-SED10**

Project: Jewett White Lead Site

Client: EPA R2/ERT

Northing (Feet): 172935.55

Location: Kill Van Kull

Easting (Feet): 948463.07

Logged By: J. Bolduc

Date: 9/27/12

SUBSURFACE PROFILE		SAMPLE			Notes
Depth ft m	Symbol	Description	Number	Type	
0 ft 0 m		Sediment Surface			
0.5		<b>SAND</b> Very dark gray, fine to coarse, trace fine subangular gravel, some silt, wire fragment, hydrogen sulfide odor throughout, very loose, wet.	JWL-SED10-A		
1.0		<b>SAND</b> Dark gray, predominantly fine to medium grained, trace coarse grained, little silt, few clam shell fragments, loose, wet.	JWL-SED10-B		
2.0			JWL-SED10-C		
3.0			JWL-SED10-D		
4.0			JWL-SED10-E		
4.5		<b>SAND</b> Dark gray to very dark grayish brown, predominantly fine grained, trace medium to coarse grained, some silt, abundant rootlets from 4.5 to 5 feet, 0.5-inch to 3-inch thick peat and peaty silt laminations from 5.5 to 8 feet, dense, wet.	JWL-SED10-F		
5.5			JWL-SED10-G		
6.5			JWL-SED10-H		
7.5			JWL-SED10-I		
8.0					
9.0					
10.0					

Drill Method: Vibracore

Lockheed Martin/SERAS  
2890 Woodbridge Avenue  
Building 209 Annex  
Edison, NJ 08837

Drill Company: Aqua Survey

Sheet: 1 of 1

Hole Size: 4 inches

Project No: SERA02-00138

Project: Jewett White Lead Site

Client: EPA R2/ERT

Location: Kill Van Kull

Logged By: J. Bolduc

## Log of Borehole: JWL-SED11

Northing (Feet): 172982.31

Easting (Feet): 948401.07

Date: 9/27/12

SUBSURFACE PROFILE		SAMPLE			Notes	
Depth	Symbol	Description	Number	Type	Recovery	
0 ft m 0		Sediment Surface  <b>SAND</b> Dark greenish gray, predominantly fine to medium grained, little coarse grained, some silt, intact clam shell, wet.	JWL-SED11-A			
1			JWL-SED11-B			
2			JWL-SED11-C			
2		<b>CLAY</b> Dark greenish gray, little fine- to coarse-grained sand, trace fine rounded gravel, occasional wood fragments, wet.	JWL-SED11-D			
3		<b>SAND</b> Dark greenish gray, fine grained, and silt, abundant wood fragments, loose, wet.	JWL-SED11-E			
3		<b>SAND and GRAVEL</b> Brown to reddish brown, interbedded fine to coarse surrounded to rounded gravel and fine- to coarse-grained sand, trace to little silt, dense, wet.				
4		<b>NO RECOVERY</b>				
5						
6						
7						Refusal at 7 feet.
8						
9						
10						

Drill Method: Vibracore

Drill Company: Aqua Survey

Hole Size: 4 inches

Lockheed Martin/SERAS  
2890 Woodbridge Avenue  
Building 209 Annex  
Edison, NJ 08837

Sheet: 1 of 1

Project No: SERA02-00138

Project: Jewett White Lead Site

Client: EPA R2/ERT

Location: Kill Van Kull

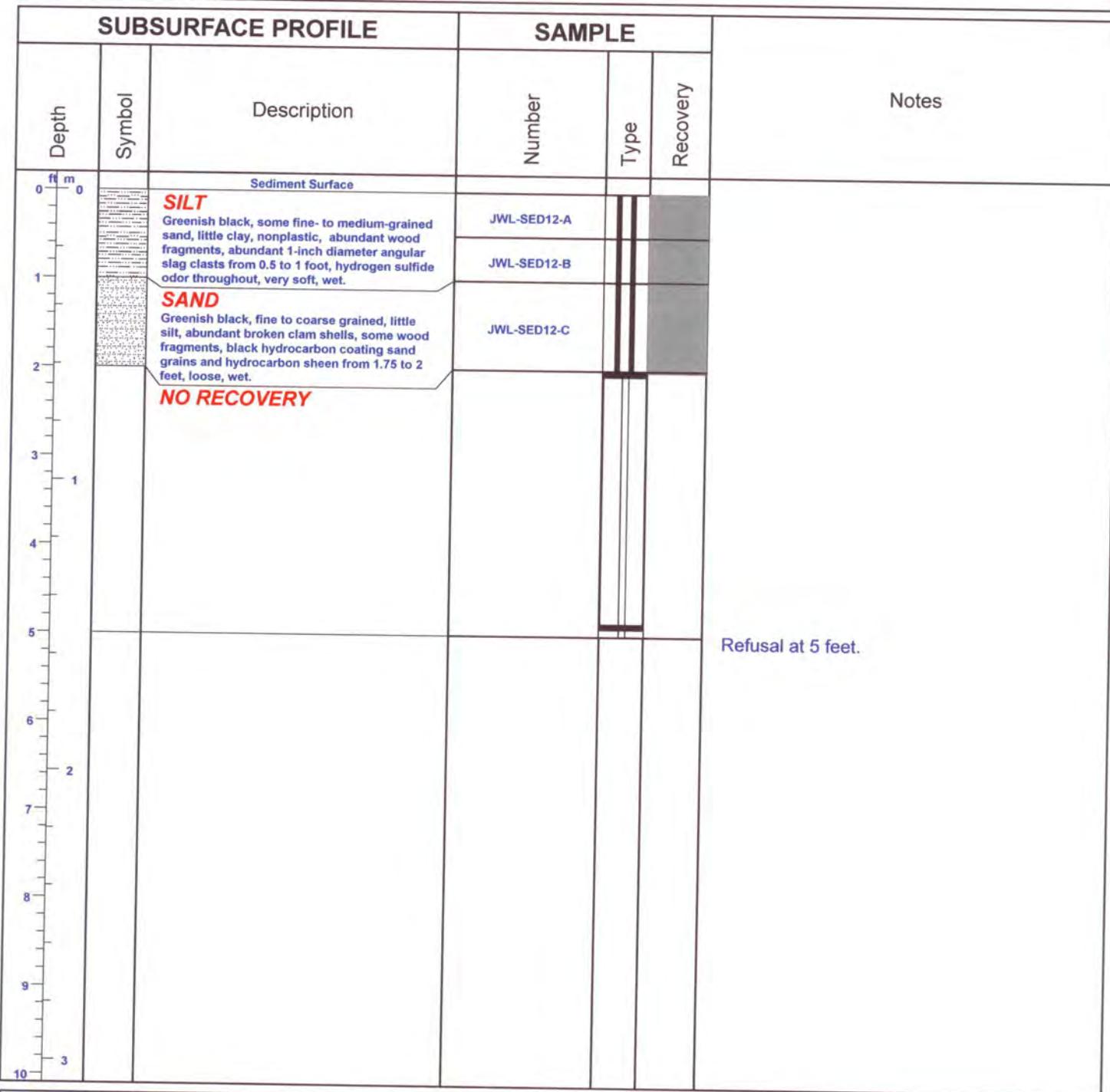
Logged By: J. Bolduc

## Log of Borehole: JWL-SED12

Northing (Feet): 173045.16

Easting (Feet): 948441.28

Date: 9/27/12



Drill Method: Vibracore

Drill Company: Aqua Survey

Hole Size: 4 inches

Lockheed Martin/SERAS  
2890 Woodbridge Avenue  
Building 209 Annex  
Edison, NJ 08837

Sheet: 1 of 1

JWL-SED->  
2-4' 9/27/12

JWL-SED-7 9/27/12  
6'-8'





JWL-SED-7 9/22/12  
0-2'

JWL-SED-7 9/27/12  
4'-6'

1 2 3 4 5 6 7 8 9 10 11  
12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

JWL-SED-9 9/26/12  
21-4'





JWL-SED-9  
0-2

9/27/12



JWL-SED-10 9/27/12  
6'-8'

6'

8



JWL-SED-10 9/27/12  
4-6'

6'

33 34 35  
2 12 13



JWL-SED-11  
2'-4' 9/27/12

4

JWL-SED-11  
2'-4' 9/27/12

JWL-SED-11  
2'-4' 9/27/12



JWL-SED-12  
0-21 9/27/12











